

Amendments to the Claims:

Please amend claims 1, 6, 11, 16, 21, 25, 27, 30, 32-34, and 39-42. Please cancel claims 2, 7, 12, 17, 26 and 32. No claims have been added. This listing of claims will replace all prior versions, and listings of claims in the application:

Listing of Claims:

1. (currently amended) A robotic master handle assembly that has only five degrees of freedom, comprising:
 - a spinning handle; a wrist joint coupled to said handle;
 - a translator that is coupled to said wrist joint;
 - an elbow joint coupled to said translator; and
 - a shoulder joint coupled to said elbow joint, wherein said handle is manipulated by a user's hand that has a centroid located between a thumb, an index finger and a middle finger, and said wrist joint allows said handle to rotate about a wrist axis that intersects the roll axis at the centroid of the user's hand.
2. (canceled)
3. (original) The assembly of claim 1, wherein said handle includes a grasper that is coupled to a handle housing, said grasper includes a pair of grooves and said handle housing includes a groove.
4. (original) The assembly of claim 3, wherein said grasper includes a switch.
5. (original) The assembly of claim 3, wherein said handle housing includes a plurality of buttons.
6. (currently amended) A robotic master handle assembly that has only five degrees of freedom, comprising:

handle means for being rotated about a roll axis;
wrist means for allowing rotation of said handle means about a wrist axis;
translator means for allowing translation of said wrist means and said handle means;

elbow means for allowing rotation of said translator means, said wrist means and said handle means about an elbow axis; and

shoulder means for allowing rotation of said elbow means, said translator means, said wrist means and said handle means about a shoulder axis, wherein said handle means is manipulated by a user's hand that has a centroid located between a thumb, an index finger and a middle finger, and the wrist axis intersects the roll axis at the centroid of the user's hand.

7. (canceled)

8. (original) The assembly of claim 6, wherein said handle means includes a grasper that is coupled to a handle housing, said grasper includes a pair of grooves and said handle housing includes a groove.

9. (original) The assembly of claim 8, wherein said grasper includes a switch.

10. (original) The assembly of claim 8, wherein said handle housing includes a plurality of buttons.

11. (currently amended) A robotic system with a master handle assembly that has only five degrees of freedom, comprising:

a robotic arm;
a medical instrument coupled to said robotic arm;
a controller coupled to said robotic arm and said medical instrument;
a spinning handle coupled to said controller; a wrist joint that is coupled to said handle;

a translator that is coupled to said wrist joint; an elbow joint coupled to said translator; and

a shoulder joint coupled to said wrist joint, wherein said handle is manipulated by a user's hand that has a centroid located between a thumb, an index finger and a middle finger, said wrist allows the handle to be rotated about a wrist axis that intersects the roll axis at the centroid of the user's hand.

12. (canceled)

13. (original) The system of claim 11, wherein said handle includes a grasper that coupled to a handle housing, said grasper includes a pair of grooves and said handle housing includes a groove.

14. (original) The system of claim 13, wherein said grasper includes a switch.

15. (original) The system of claim 13, wherein said handle housing includes a plurality of buttons.

16. (currently amended) A robotic system, comprising:
a medical instrument;
robotic means for moving said medical instrument;
handle means for being rotated about a roll axis to spin the medical instrument;
wrist means for allowing rotation of said handle means about a wrist axis to move said medical instrument; translator means for allowing translation of said wrist means and said handle means to translate said medical instrument;

elbow means for allowing rotation of said translator means, said wrist means and said handle means, to move said medical instrument; and

shoulder means for allowing rotation of said elbow means, said translator means, said wrist means and said handle means, to move said medical instrument, wherein said handle means is manipulated by a user's hand that has a centroid located between a thumb, an index

finger and a middle finger, said wrist allows said handle to rotate about a wrist axis that intersects the roll axis at the centroid of the user's hand.

17. (canceled)

18. (original) The system of claim 16, wherein said handle means includes a grasper that is coupled to a handle housing, said grasper includes a pair of grooves and said handle housing includes a groove.

19. (original) The system of claim 18, wherein said grasper includes a switch.

20. (original) The system of claim 18, wherein said handle housing includes a plurality of buttons.

21. (original) A method for operating a master handle assembly that has only five degrees of freedom, comprising:

rotating a handle about a roll axis;

rotating the handle about a wrist axis;

translating the handle relative to a translation axis;

rotating the handle about an elbow axis; ~~and~~,

rotating the handle about a shoulder axis; and

manipulating said handle means with a user's hand that has a centroid located between a thumb, an index finger and a middle finger, said wrist allows said handle to rotate about a wrist axis that intersects the roll axis at the centroid of the user's hand.

22. (original) The method of claim 21, wherein rotating the handle spins a medical instrument.

23. (original) The method of claim 21, wherein rotating the handle about the wrist axis moves a medical instrument.

24. (original) The method of claim 21, wherein moving the wrist and handle along the translation axis moves a medical instrument.

25. (currently amended) A robotic system, comprising:
a robotic arm;
a medical instrument coupled to said robotic arm, said medical instrument pivots about a pivot point located at an incision of a patient;
a handle; ~~and~~,
a translator coupled to said handle, said translator allows movement of said handle relative to a translator axis;
an elbow coupled to said translator, to allow movement of said handle about an elbow axis that intersects with the translator axis;
a shoulder coupled to said elbow to allow movement of said handle about a shoulder axis that intersects the elbow axis and the translator axis; ~~and~~,
a controller coupled to said robotic arm, said translator, said elbow and said shoulder to control movement of said surgical instrument such that the intersection of the translator, elbow and shoulder axis corresponds to the pivot point; and
a wrist that allows said handle to be rotated about a wrist axis, said handle spins about a roll axis, wherein said handle is manipulated by a user's hand that has a centroid located between a thumb, an index finger and a middle finger, and the wrist axis intersects the roll axis at the centroid of the user's hand.

26. (canceled)

27. (original) The system of claim ~~[[26]]~~ 25, wherein said handle includes a grasper that is coupled to a handle housing, said grasper includes a pair of grooves and said handle housing includes a groove.

28. (original) The system of claim 27, wherein said grasper includes a switch.

29. (original) The system of claim 25, wherein said handle housing includes a plurality of buttons.

30. (currently amended) A robotic system, comprising:
a medical instrument that pivots about a pivot point located at an incision of a patient;
robotic means for moving said medical instrument;
handle means for being rotated about a roll axis to spin said medical instrument;
translator means for allowing movement of said handle means relative to a translator axis;
elbow means for allowing rotation of said handle means about an elbow axis that intersects the translator axis;
shoulder means for allowing rotation of said handle means about a shoulder axis that intersects the translator axis; ~~and~~,
controller means for moving said robotic means in response to movement of said handle means wherein the intersection of the translation, elbow and shoulder axis corresponds to the pivot point; and
wrist means for allowing said handle means to be rotated about a wrist axis, said handle means spins about a roll axis, wherein said handle means is manipulated by a user's hand that has a centroid located between a thumb, an index finger and a middle finger, and the wrist axis intersects with the roll axis at the centroid of the user's hand.

31. (canceled)

32. (currently amended) The system of claim ~~[[31]]~~ 30, wherein said handle means includes a grasper that is coupled to a handle housing, said grasper includes a pair of grooves and said handle housing includes a groove.

33. (currently amended) The system of claim ~~[[31]]~~ 30, wherein said grasper includes a switch.

34. (currently amended) The system of claim ~~[[31]]~~ 30, wherein said handle housing includes a plurality of buttons.

35. - 38. (canceled)

39. (currently amended) A master robotic handle assembly that has only five degrees of freedom, comprising:

- a handle;
- a first joint that provides a first degree of freedom for said handle;
- a second joint that provides a second degree of freedom for said handle;
- a third joint that provides a third degree of freedom for said handle;
- a fourth joint that provides a fourth degree of freedom for said handle; and~~[[,]]~~
- a fifth joint that provides a fifth degree of freedom for said handle.

40. (currently Amended) A master robotic handle assembly that has only five degrees of freedom, comprising:

- a handle;
- first means for providing said handle with a first degree of freedom;
- second means for providing said handle with a second degree of freedom;
- third means for providing said handle with a third degree of freedom;
- fourth means for providing said handle with a fourth degree of freedom; and~~[[,]]~~
- fifth means for providing said handle with a fifth degree of freedom.

41. (currently amended) A robotic system that has only five degrees of freedom, comprising:

- a robotic arm;
- a medical instrument which has an end effector that can move in a first direction, a second direction, a third direction, a fourth direction and a fifth direction; and
- a handle that has a first degree of freedom that corresponds to movement of said end effector in the first direction, a second degree of freedom that corresponds to movement of

said end effector in the second direction, a third degree of freedom that corresponds to movement of said end effector in the third direction, a fourth degree of freedom that corresponds to movement of said end effector in the fourth direction, and a fifth degree of freedom that corresponds to movement of said end effector in the fifth direction.

42. (currently amended) A method for operating a robotic system that has only five degrees of freedom, comprising:

moving a handle about a first degree of freedom to move an end effector of a medical instrument in a first direction;

moving the handle about a second degree of freedom to move the end effector in a second direction;

moving the handle about a third degree of freedom to move the end effector in a third direction;

moving the handle about a fourth degree of freedom to move the end effector in a fourth direction; and[[,]]

moving the handle about a fifth degree of freedom to move the end effector in a fifth direction.